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ABSTRACT

This document features the syllabus for a course in Elementary Statistics/Mathematics at Southern University in Baton Rouge, LA. The course textbook, a course description, readings, goals, and course requirements are presented. Basic descriptive analysis and mathematical concepts commonly used in statistics are emphasized in the course. Topics discussed are data analysis; measures of central tendency, dispersion, and position; probability; counting rules; normal and binomial distributions; and correlations. (MM)

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SOUTHERN UNIVERSITY - DEPARTMENT OF MATHEMATICS

ELEMENTARY STATISTICS I - MATHEMATICS 274

FALL 2001

COURSE SYLLABUS

I. Descriptive Information

COURSE PROFESSOR: Mrs. D. L. Clark
e-mail: teachlearners@yahoo.com

COURSE NUMBER: MATH 274
OFFICE NO. : 304-B T.T. ALLAIN

OFFICE PHONE: 771-5180
FAX : 771-4762

OFFICE HOURS: 2:00 p.m. MWF, 11:00 TWRF, and others by appointment

COURSE TEXTBOOK: Elementary Statistics by Mario F. Triola, Eighth Edition, Addison Wesley Longman-Publisher, 2001
Scientific Calculators: **TI-83 & Casio Algebra FX 2.0** will be used in class by instructor. (Learner is responsible for operating any other calculator).

COURSE DESCRIPTION: Course is an introduction to basic descriptive analysis and mathematical concepts commonly used in statistics. Topics discussed are percentiles, measures of central tendency and of dispersion, standard normal distribution, regression, and prediction.

CONCEPTUAL FRAMEWORK: Course is geared for those learners, except mathematics and engineering majors, who need to satisfy their curriculum. These learners are exposed to the best teaching practices and several teaching strategies. Multicultural education is embraced allowing for global perspectives of statistical concepts.

INSTRUCTOR'S EMPHASIS: Basic descriptive analysis and mathematical concepts commonly used in statistics are emphasized in the course. Topics discussed are data analysis; measures of central tendency, dispersion, and position; probability; counting rules; normal and binomial distributions; and correlations. Data are obtained from journals of learner's perspective discipline, Bureau of Labor Statistics, U.S. Census, and various sites on the Internet with emphasis on interpretation of statistics from their studies.

CREDIT: 3 hours

PREREQUISITE: none

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II. Specification of Course Goals and Learning Objectives

***Goal 1**: IN PROBLEM-SOLVING SITUATIONS, LEARNERS DISCOVER ASPECTS OF STATISTICS, TERMS ASSOCIATED WITH STATISTICS, AND HOW APPLICABLE STATISTICS IS TO REAL LIFE..*

Objective 1a: Learners will be able to state meanings of statistics orally and in writing along with citing examples from their discipline.

Objective 1b: Learners will be able to answer basic questions relative to statistical analysis using appropriate statistical terminology.

Objective 1c: Given raw data or grouped data, the learners will demonstrate an understanding of the calculations and interpretation of fractiles for a given data set.

***Goal 2:** LEARNERS DEMONSTRATE CRITICAL THINKING AND OTHER COGNITIVE STRATEGIES NECESSARY TO ARRIVE AT WISE DECISIONS IN THEIR STATISTICAL STUDIES AND IN LIFE.*

Objective 2a: Learners will be able to distinguish among the four levels of data.

Objective 2b: Learners should be able to differentiate among the sampling methods, and decide on a method's appropriateness for a given statistical study.

Objective 2c: Learners will be able to apply the Central Limit Theorem to better estimate parameters of the population.

Objective 2d: Learners will be able to interpret results after analyzing data sets to determine whether two variables are linearly related, and determine significance of these correlations.

Goal 3: IN PROBLEM-SOLVING INVESTIGATIONS, LEARNERS DEMONSTRATE AN UNDERSTANDING OF STATISTICAL PROCESSES BY ANALYZING SAMPLES OF DATA, INTERPRETING STATISTICS AS IT APPLIES TO REAL-LIFE SITUATIONS.

Objective 3a: Learners will be able to demonstrate skills for calculating and interpreting measures of central, dispersion, and location.

Objective 3b: Given charts, graphs, or statistical tables, learners will be able to read/interpret them.

Objective 3c: Learners will be able to collect data, tabulate results, construct appropriate graphs and draw conclusions applicable to real life situations.

Goal 4: IN PROBLEM-SOLVING RELATIONSHIPS, LEARNERS WILL DISCOVER TRENDS AND FORMULATE CONJECTURES TO SOLVE SIMPLE PROBABILITY CHALLENGES.

Objective 4a: Learners will demonstrate an understanding of chance phenomena and the basic skills necessary to solve simple probability challenges.

Objective 4b: Learners will demonstrate their understanding of the concept of Probability, and expound on its laws when dealing with chance phenomena, and analyze the likelihood of certain real life situations.

Objective 4c: Learners will recognize and answer questions about data that are binomially or normally distributed, parameters/statistics, and predict the possibility of various phenomena associated with that data.

III. Course Content

Chapter 1	Introduction to Statistics
	The Nature of Data
	Uses and Abuses of Statistics
	Design of Experiments
Chapter 2	Descriptive Statistics
	Summarizing Data with Frequency Tables
	Presentations of Statistical Data
	Measures of Central Tendency
	Measures of Variation
	Measures of Position
Chapter 3	Probability
	Fundamental Formulas
	Counting
Chapter 4	Probability Distributions
	Random Variables
	Binomial Experiments/Distributions
Chapter 5	Normal Probability Distribution
	The Standard Normal Distributions
	Non-standard Normal Distributions
	Central Limit Theorem
Chapter 9	Correlation (Sections 9.1 & 9.2 only)

http://www.stat.uiuc.edu/~stat100/java/GCApplet/GCAppletFrame.html

IIV. Readings

A. Text: **Elementary Statistics** by Mario F. Triola, Addison Wesley Longman Publishing Co.

http://occawlonline.pearsoned.com/bookbind/pubbooks/triola_awl/chapter1/deluxe.html

B. Supplementary books:

1) Johnson, R & Kuby,P , Elementary Statistics, 8th Edition, Duxbury Publisher, 2000
2) Mendenhall W., Wackerly D., Scheaffer R., Mathematical Statistics with Application, PWS-Kent Publishing , 1990
3) Sincich, Levine, Stephan, Practical Statistics by Example, Prentice Hall, 1999

C. External links: 1) specialty organization, 2) content standards, and 3) state technology standards.

1) **The Mathematical Association of America**
http://www.maa.org/

2) **National Council of Teachers of Mathematics**
http://www.nctm.org/standards/overview.htm

Data Analysis and Probability
http://standards.nctm.org/document/chapter3/data.htm

3) **State of Louisiana Technology Standards**
http://www.doe.state.la.us/DOE/asps/home.asp?I=LCET

V. Description of Instructional Procedures

Guided Lecture	50%
Discovery Learning (small groups)	20%
Teaching by Learners	10%
Hands-on (Minds on) Statistics Lab	20 %
Immediate/Frequent Feedback Opportunities (?)	

VI. Course Schedule (See handout for details)

Activity	Date(s)
1) Class assignments	TBA
2) Tests	TBA
3) Examinations:	Midterm: Oct. 15 – 19
	Final*: December 6 – 12

*Check school calendar for Final Exam dates]

4) Blackboard assignments/projects TBA by instructor
5) Web sites (for data for final project: suggested)

VII. Course Requirements

A. Academic

Each learner enrolled in this course will be required to:

1) take and pass chapter examinations

2) complete all assignments
   - ✓ textbook - problems will be assigned

   Criteria for scoring: problems from assignment will be randomly

selected and scored. Learners not completing assignments will receive a score of 0.

✓ Outside assignments- Learners will chose articles from magazines or journals in their discipline. Articles must include a statistical chart, graph, or table as it relates to concepts learned in class. *Criteria for scoring*: problems from assignment will be accepted through the specified due dates **but not after**. Scoring will be based upon contents, critical thinking , neatness, and clarity of interpretation(s) from article. Please use instruction sheet for format of this assignment.

✓ Computer Lab exercises- Learners will be assigned problems Requiring the use of statistical software, SPSS. These exercises will be assigned during the course of the semester.
Criteria for scoring: problems will be scored based on output, accuracy, and interpretation of computer output.

3) possess current edition textbook

4) possess a **scientific calculator**, compass & protractor(optional)

✓ Seatwork will be given to learn how to use calculator to assist with statistical calculations.
Criteria for scoring: exercises will be scored based on learners ability to master calculations in statistics.
http://kings.k12.ca.us/math/lessons/ti83tutorial/mainpage.html
http://www.howardcc.edu/math/calculator/ti83frame.htm

✓ Worksheets will be distributed to facilitate learning to manipulate the compass/protractor for construction of statistical charts.
Criteria for scoring: exercises will be scored based on learners ability to master use of tools in a real life setting.

5) possess pencil(s) and paper (notebook & loose leaf)
Note: except for formal reports, 'all' work must be done in pencil.

6) present a portfolio as final project following exact instructions.
Note: TBA

B. Administrative

Each learner enrolled in this course will be required to:

1) attend class regularly and punctually,
2) present excuses to the instructor for absences because of illness or other unavoidable circumstances (excuses explain absences, but do not remove them),
3) notify instructor when you will miss an examination **before** the examination is administered, then discuss rescheduling of examination and turning in overdue assignments with instructor on phone or in office, only. **Note:** Rescheduling exams and submitting overdue assignments will be granted at the discretion of the instructor, and

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4) adhere to the policy of no make-ups on pop-quizzes

VIII. Evaluation of Learners

The final grade will be determined by the average of the following:

Chapter (or other) Tests	100 points each
Assignments	up to 50 points for each
Mid-term	100 - 150 points
Final examination/Course Portfolio	150 - 200 points

IX. Grading

89.8 – 100.0 = A
79.8 - 89.7 = B
69.8 - 79.7 = C
58.0 - 69.7 = D
Below 58.0 = F

X. Accommodation of Students with Disabilities

Learners that are considered as having a disability are to provide the instructor with a letter from the Department of Special Education stating the appropriate accommodations required of this course. If you have a documented disability, then please discuss it with Ms. Patricia Hebert at 771-3950 in Room 125 Blank Hall.

DISCLAIMER: THESE ACTIVITIES AND ASSIGNMENTS ARE TENTATIVE. CHANGES MAY OCCUR DUE TO ASSESSMENT OF LEARNERS BY THE INSTRUCTOR AND DUE TO THE INSTRUCTOR. IT WILL BE NECESSARY FOR THE LEARNER TO PERIODICALLY REVIEW THIS COURSE SYLLABUS ONLINE VIA BLACKBOARD.